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The total dissimilarity between this surd equation and the equation  $x^2 + 2x = 3$ , which Mr. Draughton compares it to, can be seen by changing the signs of the various terms of the quadratic; in every case (3 more besides the given equation) new roots will be produced, the equations obtained being wholly dissimilar to the original equation; but no amount of changes of sign of the terms of  $\sqrt{(x+a)-1} (x-a)-a=0$  can produce an equation which has more than one quarter of a chance of having one root, the product of the given equation and the equations obtained by changing signs giving only an equation of the first degree, while the product of  $x^2 + 2x - 3 = 0$ ,  $x^2 + 2x + 3 = 0$ ,  $x^2 - 2x - 3 = 0$  and  $x^2 - 2x + 3 = 0$ , give an equation of the eighth degree.

It is undoubtedly true that by a hocus-pocus Mr. Draughton seems to make  $+\sqrt{(x-4)} = -1$ , but that was by doing exactly what I said was a wrong operation. Take his equation  $x^2 = 3 - 2x$ ; square it; among the roots of this last equation will be found  $x = 1 \pm \sqrt{-2}$ , which will of course prove if we assume that  $x^2$  must equal  $3 - 2x$ ; as a matter of fact however for this value of  $x$ ,  $x^2$  must  $= -(3 - 2x)$  and the obtaining of the wrong sign for  $x^2$  should have been a notification to go back and find the error in the work, just as obtaining  $+\sqrt{(x-4)} = -1$  should have been in the other equation.

I am sorry that this comment is so long, but I wished to touch on all the points brought up by Mr. Draughton; I should be glad to answer any further objections which he may care to make.

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## EDITORIALS.

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*The Electrical World*, in its issue of October 13th, published an appreciative sketch with portrait of our subscriber, Alexander Macfarlane, LL.D., late of the Chair of Physics in the University of Texas, and now of Cornell University, Ithaca, New York.

Professor William C. L. Gorton, Ph.D., of the Chair of Mathematics and Astronomy, Woman's College of Baltimore, died on November 9th, aged 28 years. Professor Gorton was a member of the American Mathematical Society.

Professor E. W. Nichols, of The Virginia Military Institute, Lexington, Va., and author of a recent and valuable text-book on *Analytic Geometry*, writes as follows: "Permit me to acknowledge the benefit I have received from the MONTHLY in my capacity as a professor of Mathematics. I place it each month in the hands of my classes and find it a great stimulus to independent endeavor."

We acknowledge the receipt of a pamphlet of 17 pages, by our contributor, Prof. Warren Holden, Girard College, Philadelphia, entitled "Oneness of Arithmetic," in which it is shown that most of the Rules of

Arithmetic are traceable to one principle, namely, Ratio and Proportion. The method of the pamphlet is especially useful in elucidating the rules involving Percentage. A copy of the pamphlet will be mailed free to any reader of the MONTHLY, who sends his address to the author as above.

We wish to close up all subscriptions for 1894 by January, 1st and we trust all who have as yet failed to remit will respond by sending in the price of subscription without further delay. We have about \$200 out in subscriptions for 1894, and we will need this money to meet the expenses of the MONTHLY which will have to be promptly paid at close of year. As you will be interested in making the MONTHLY a grand success for 1895, please lend us practical aid in closing up our books for the present year, so that it may not be necessary to carry over any liabilities into the next year.

Dr. George Bruce Halsted closed his inaugural address as President of the Texas Academy of Science in the following words: "From all this what do we learn as to the characteristic quality of the highest teaching, as to the true function of a university? Unfortunately there are still some people so dull, so envious, so unscientific, so stupid, as to maintain that the highest aim of a university should be the training of young men and young women, where they use the word "training" in its repressive, inhibitive sense

The most profound discoveries of modern science unite in replacing this old "training" idea of education by one immeasurably higher, finer, nobler.

We now know that the paramount aim of teaching at every stage, and preeminently of the final stage, at the university, should be to help the developing mind, the developing character, the developing personality. Judicious, delicate, sympathetic help is now the watchword.

Even horses and dogs worth owning are no longer "broken"; they are "gentled." What has brought about this glorious change? Science, the greatest achievement of human life, the one thing that puts today—the present—in advance of all past ages.

Not only by having subjugated the forces of nature to the dominion of mind, but also by its intellectual influence, science is fundamentally remodeling the life and thought of modern humanity.

Though science is the purest knowledge, yet even our estimate of knowledge has been changed by science. Mere acquirement is now considered an unworthy end or aim for endeavor. Action, production alone now receive our homage, now gives a life worth living; and, therefore each must aim either at the practical application of his knowledge or at the extension of the limits of science itself. For to extend the limits of science is really to work for the progress of humanity".

We would be pleased to publish the entire address should Dr. Halsted see fit to permit us to do so. It was only after urgent solicitation that he sent us the above. This has only whetted our appetites for the whole Address.

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### Books and Periodicals.

*Journal de Mathematiques Elementaires.* Publie par H. Vuibert.  
Paris: Librairie Nony et Cie 17, rue des Ecoles.

The November number has 8-quarto double-column pages, and contains a